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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KOROBV, VITALI A

ART UNIT PAPER NUMBER

2155

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,586

Applicant(s)

ADAR ET AL.

Examiner

Vitali Korobov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/23/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 25 and 27 – 31 are presented for examination.

Paper Submitted

2. It is hereby acknowledged that the following papers have been received and placed of record in the file: **Information Disclosure Statements** as received on 08/23/2002 has been considered.

Specification

3. The attempt to incorporate subject matter into this application by reference to Hofmann (misspelled as Hofman) Thomas, "Probabilistic Latent Semantic Index" is ineffective because it is not clear on what grounds and for what reason the incorporation was made. Further, if flowchart 400 is an illustration of the teachings of Hofmann, then it should be labeled as "Prior Art".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1 – 3, 5 – 11 and 28 – 31 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,742,003 issued to Heckerman et al., (hereinafter Heckerman).

With respect to claim 1, Heckerman teaches a machine-implemented method (Col. 1, line 27 – computer) for extrapolating user profile information from web page access patterns of a user (Col. 1, lines 37 – 41- categorization (profiling) of users based on web page access pattern), comprising: detecting a set of web pages accessed by a user (Col. 1, line 30); mapping at least a subset of said web pages to a first data structure (Fig. 1a – data structure of user attributes), said first data structure identifies a web page access pattern of said user (Col. 1, lines 50 – 52); comparing said first data structure to a second data structure to obtain a comparison result, said second data structure identifies a web page access pattern of a set of known users, said known users having a user profile attribute in common (Col. 1, lines 37 – 41 - categorization of users based on web page access pattern); and assigning said user profile attribute to said user in response to said comparison result (Col. 1, lines 57 – 61 – review of user attributes and assignment of a user to a class; Col. 4, lines 61 – 66, machine-implemented, automatic clustering of user records into appropriate categories).

With respect to claim 2, Heckerman teaches the method of claim 1, wherein said first and second data structures are multi-dimensional vectors (Col. 1, lines 48 – 50 – m-dimensional vectors) wherein each dimension of said vectors corresponds to a web page (Col. 1, lines 50 – 52).

With respect to claim 3, Heckerman teaches the method of claim 2, wherein said comparing step comprises: determining a distance between said vectors (Col. 18, lines 27 – 35 – distance calculation assuming individual attributes are independent, i.e. dimensions in m-dimensional space).

With respect to claim 5, Heckerman teaches the method of claim 1, wherein said profile attribute is demographic information (Col. 1, lines 37 – 38, also col. 21, lines 35 – 43).

With respect to claim 6, Heckerman teaches the method of claim 1, wherein said profile attribute is a gender of said user (col. 21, lines 35 – 43).

With respect to claim 7, Heckerman teaches a machine-implemented method for extrapolating user profile information from web page access patterns of a user, comprising: assigning bias values to a plurality of web pages (Fig. 5A, right column – bias values); detecting at least a subset of said web pages accessed by a user (Col. 13, lines 58 – 59 - discriminating and characteristic subsets of pages); combining said bias values of said subset of web pages to obtain a combination result (Col. 22, lines 1 – 3 – merging of similar segment (subset) groups); and assigning a user profile attribute to said user in response to said combination result (Col. 22, lines 19 – 22 – scoring segments (subsets) based on similarity and obtaining normalized scores for user profile attributes).

With respect to claim 8, Heckerman teaches the method of claim 7, wherein said combination result is a summation of said bias values of said subset of web pages (Fig. 18, item 1820 – summary, col. 22, lines 49 – 51).

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With respect to claim 9, Heckerman teaches the method of claim 7, wherein said profile attribute is demographic information (Col. 21, line 63 – age).

With respect to claim 10, Heckerman teaches the method of claim 7, wherein said profile attribute is a gender of said user (Col. 21, line 63 – gender).

With respect to claim 11, Heckerman teaches a machine-implemented method for extrapolating profile information from web page access patterns of a test user, comprising: detecting a set of web pages accessed by a test user (Col. 1, line 30); initializing a first set of Expectation Maximization (EM) parameters (Col. 25, lines 10 – reading the data); performing a first EM process using said first set of initialized parameters to obtain a first EM process result (Col. 25, lines 10 – 15 – executing EM algorithm); and assigning a user profile attribute to said test user in response to said first EM process result (Col. 25, lines 10 – 15 – categorizing cases (users) into categories).

Claim 28 is rejected in view of the above rejection of claim 1. Claim 28 is essentially the same as claim 1, except that it sets forth the invention as an apparatus rather than a method, as does claim 1. Further, Heckerman's method is computer-based (Col. 1, lines 28 – 30). Computers are known in the art to inherently contain a memory and a processor, in communication with each other.

Claim 29 is rejected in view of the above rejection of claim 11. Claim 29 is essentially the same as claim 11, except that it sets forth the invention as an apparatus rather than a method, as does claim 11. Further, Heckerman's method is computer-

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based (Col. 1, lines 28 – 30). Computers are known in the art to inherently contain a memory and a processor, in communication with each other.

Claim 30 is rejected in view of the above rejection of claim 1. Claim 30 is essentially the same as claim 1, except that it sets forth the invention as a storage medium rather than a method, as does claim 1. Further, Heckerman's method is computer-based (Col. 1, lines 28 – 30). Computers are known in the art to inherently contain processors capable of executing program code embodied in a storage medium.

Claim 31 is rejected in view of the above rejection of claim 11. Claim 31 is essentially the same as claim 11, except that it sets forth the invention as a storage medium rather than a method, as does claim 11. Further, Heckerman's method is computer-based (Col. 1, lines 28 – 30). Computers are known in the art to inherently contain processors capable of executing program code embodied in a storage medium.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised

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of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4, 12 – 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,742,003 issued to Heckerman et al., (hereinafter Heckerman) in view of U. S. Patent No. 6,574,378 issued to Lim (hereinafter Lim).

With respect to claim 4, Heckerman teaches the method of claim 2, but does not explicitly teach additional limitations of claim 4. Lim teaches said additional limitations, wherein said comparison result is a cosine of an angle between said vectors (Lim, col. 14, lines 1 – 6). Heckerman and Lim are analogous art because they are both related to computation of a maximum likelihood estimates from incomplete data, in this case calculation of similarity between two vectors. Therefore, it would have been obvious to one having ordinary skills in the art at the time the invention was made to combine the teachings of Heckerman and Lim in order to provide the basis for many unsupervised clustering algorithms (Lim, col. 7, lines 56 – 60) and as a quantitative measure of similarity in the presence of unobserved variables (Lim, col. 9, lines 55 – 57).

Claims 12 - 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,742,003 issued to Heckerman et al., (hereinafter Heckerman) in view of Dempster, et al., "Maximum Likelihood from Incomplete Data via the EM Algorithm", Journal of Royal Statistical Society, B39, 1977. (hereinafter Dempster).

With respect to claim 12, Heckerman and Dempster teach the method of claim 11, wherein said EM process comprises the steps of: performing a first expectation step using said first set of initialized parameters to obtain an expectation result (Dempster, page 2, paragraph between (1.3) and (1.4) – first, expectation step); performing a first maximization step using said expectation result to obtain a maximization result (Dempster, page 2, paragraph between (1.4) and (1.5) – second, maximization step); and repeating said expectation and maximization steps, said repeated expectation step uses said maximization result (Dempster, page 3, Table 1, repeated iteration steps 1 – 8).

Heckerman and Dempster are analogous art because they are both related to computation of a maximum likelihood estimates from incomplete data. Therefore, it would have been obvious to one having ordinary skills in the art at the time the invention was made to combine the teachings of Heckerman and Dempster in order to provide a machine-implemented categorization algorithm of users based on their web site access pattern. (Heckerman, col. 25, line 10).

Claims 13 – 24 are rejected in view of the above rejection of claims 11 and 12. Claims 13 – 24 are nothing more than a step-by-step implementation of EM algorithm, with respect to various categorization parameters, taught by Heckerman, such as demographic information (Col. 21, line 63 – age), and gender (Col. 21, line 63 – gender), based on user's web site access pattern. For example, with respect to claim 13, the applicant claims the method of claim 12, further comprising: determining a log-likelihood in place of said repeating step (Dempster, first half of page 5); and repeating

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said expectation and maximization steps in response to said log-likelihood (Dempster, page 5, second half of page 5, log-likelihood representation of the difference of an unconditional and conditional expectation of the sufficient statistical sample. This step is also taught by Dempster on page 4, between equations (2.3) and (2.4)). The remaining claims 14 – 24 have the same scope as claims 12 and 13, i.e. application of specific steps of EM algorithm, taught by Dempster, to user categorization based on web site access pattern, as taught by Heckerman, and are rejected under the same rationale as the above rejected claims 12 and 13.

With respect to claim 25, Heckerman teaches a machine-implemented method for extrapolating profile information from web page access patterns of a test user, comprising: detecting a set of web pages accessed by a test user (Heckerman, Col. 1, line 30); counting said detected web pages to obtain a total number of test user web pages (Heckerman, Col. 15, lines 49 – 50, Dempster, page 2, line 1, sample size is 197); if said total number of test user web pages is in a first range, then performing the steps of: initializing a first set of Expectation Maximization (EM) parameters (Heckerman, Col. 25, lines 10 – reading the data), performing a first EM process using said first set of initialized parameters to obtain a first EM process result (Heckerman, Col. 25, lines 10 – 15 – executing EM algorithm), and assigning a user profile attribute to said test user in response to said first EM process result (Heckerman, Col. 25, lines 10 – 15 – categorizing cases (users) into categories); and if said total number of test user web pages is in a second range, said first and second ranges do not overlap, then performing the steps of: initializing a second set of EM parameters, performing a second

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EM process using said second set of initialized parameters to obtain a second EM process result, and assigning a user profile attribute to said test user in response to said second EM process result (Dempster discusses implementation of EM algorithm with respect to two different (non-overlapping) sample spaces on page 5, lines 1 – 3 and in subsequent examples; Heckerman discusses a second technique when the individual attributes (parameters) are independent (do not overlap), (Heckerman, col. 18, lines 27 – 29).

With respect to claim 27, Heckerman teaches a machine-implemented method for extrapolating profile information from web page access patterns of a user, comprising: detecting a set of web pages accessed by a user (Heckerman, Col. 1, line 30); counting web pages in said set of web pages to obtain a total number of web pages (Heckerman, Col. 15, lines 49 – 50; Dempster, page 2, line 1, sample size is 197); performing a first classification method to obtain a first classification result if said total is within a first range (Heckerman, Col. 25, lines 10 – 15 – executing EM algorithm); performing a second classification method to obtain a second classification result if said total is within a second range, wherein each of said first and second classification methods are selected from the group consisting of vector, bias, and probabilistic classification methods (Heckerman, FIG. 17, probability density functions, Col. 13, lines 58 – 59 – weight of evidence (bias), Dempster, page 3, first line of the last paragraph – vector of complete-data sufficient statistics); and assigning a user profile attribute to said user in response to at least one of said results (Col. 25, lines 10 – 15 – categorizing cases (users) into categories).

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Conclusion


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vitali Korobov whose telephone number is 571-272-7506. The examiner can normally be reached on Mon-Friday 8a.m. - 4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vitali Korobov
Examiner
Art Unit 2155

05/16/2005


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